

In the Claims:

Claims 1-24 (Canceled)

25. (New) Stereoscopic display apparatus comprising:

two projectors having inputs connectable to a source of digital data representing the color components sets of two stereoscopic images, each of said projectors having an output outputting an optical beam having a set of color components in which at least one color component of the set is of an orthogonal polarization state with respect to the other color components of the set;

a polarization preserving screen;

an optical filter system using exclusively optical retarders to manipulate said polarization states for polarizing the output beams of the two projectors into desired mutually orthogonal polarization states;

polarizing clean-up filters for increasing the polarization ratio of the output beams;

and stacking means for stacking said two color sets onto said polarization preserving screen such as to enable stereoscopic viewing of the two color sets via orthogonally polarized filters.

26. (New) The apparatus according to Claim 25, wherein said optical filter system includes, for each projector, a polarization rectifier which transforms a plurality of color components in different polarization states at the input into the same polarization state at the output by using exclusively said optical retarders for polarization manipulation.

27. (New) The apparatus according to Claim 26, wherein each polarization rectifier includes: a splitter which separates the color components into two optical paths, a polarization transformer in at least one optical path which utilizes a said optical retarder to transform the respective color component to another polarization state in such manner that mutually orthogonal polarization states are transformed to polarization states that are also mutually orthogonal; and a combiner which combines the two optical paths for stacking onto said polarization preserving screen.

28. (New) The apparatus according to Claim 27, wherein said splitter is a dichroic mirror.

29. (New) The apparatus according to Claim 27, wherein said splitter is a polarization beam splitter.

30. (New) The apparatus according to Claim 26, wherein each polarization rectifier includes a stack of said optical retarders which align the polarizations of all the color components.

31. (New) The apparatus according to Claim 30, wherein the color components are red, green and blue and the polarization of the green component is orthogonal to the polarizations of the red and the blue components, and wherein each polarization rectifier includes: a stack of said optical retarders which rotate the green color component polarization direction by 90° leaving the polarizations of the other color components intact; and a polarization transformer.

32. (New) The apparatus according to Claim 25, wherein said stacking means stacks the images outputted from said optical filter system by image warping onto said polarization preserving screen.

33. (New) The apparatus according to Claim 25, wherein each of said projectors is an LCD projector outputting red and blue color components in one polarization state, and green color components in an orthogonal polarization state.

34. (New) Stereoscopic display apparatus comprising:

two projection engines having inputs connectable to a source of digital data representing the color components sets of two stereoscopic images, each of said projection engines having an output outputting an optical beam having a set of color components in which at least one color component of the set is of an orthogonal polarization state with respect to the other color components of the set;

a polarization preserving screen;

a polarization rectifier for each projection engine effective to manipulate said polarization states exclusively by optical retarders, and to transform the beams

outputted by the projection engines to beams in which all color components have the same polarization state in such a manner that the two transformed beams have mutually orthogonal polarizations;

a polarization beam splitter for combining the transformed beams into one co-axial beam;

and a projection lens for imaging the stereoscopic images on said screen.

35. (New) The apparatus according to Claim 34, wherein each polarization rectifier includes: a splitter which separates the color components into two optical paths, a polarization transformer in at least one optical path which utilizes a said optical retarder to transform the respective color component to another polarization state in such manner that mutually orthogonal polarization states are transformed to polarization states that are also mutually orthogonal; and a combiner which combines the two optical paths for stacking onto said polarization preserving screen.

36. (New) The apparatus according to Claim 35, wherein said splitter is a dichroic mirror.

37. (New) The apparatus according to Claim 35, wherein said splitter is a polarization beam splitter.

38. (New) The apparatus according to Claim 34, wherein each polarization rectifier includes a stack of said optical retarders which align the polarizations of all the color components in desired directions.

39. (New) The apparatus according to Claim 38, wherein the color components are red, green and blue and the polarization of the green component is orthogonal to the polarizations of the red and the blue components, and wherein each polarization rectifier includes: a stack of said optical retarders which rotate the green color component polarization direction by 90° leaving the polarizations of the other color components intact; and a polarization transformer.